ABSTRACT

To resolve problems, with the invention, an optical transmitter comprises an encoder for generating an optical signal obtained by encoding multi-wavelength pulses corresponding to sending data by use of a method of time spread/wavelength hopping in accordance with an encoding pattern of the encoder itself. The encoder concurrently executes time delay for every wavelength component at encoding, and time delay due to pre-compensation processing to pre-compensate for difference in propagation time for every wavelength component, occurring due to chromatic dispersion characteristics of a transmission line by α%. An optical receiver comprises a decoder for decoding the optical signal transmitted by the optical transmitter in accordance with a decoding pattern of the decoder itself. The decoder concurrently executes time delay for every wavelength component at decoding, and time delay due to dispersion equalization processing to compensate for difference in propagation time for every wavelength component, occurring due to chromatic dispersion characteristics of the transmission line by β%.